Fig 1: TFR of a circular lens of 2 mm diameter exhibiting power profile P1 of Fig. 2
monochromatic: 550 nm
polychromatic: mean wavelength = 550 nm, Gaussian distr., C.L. = 3.1 microns
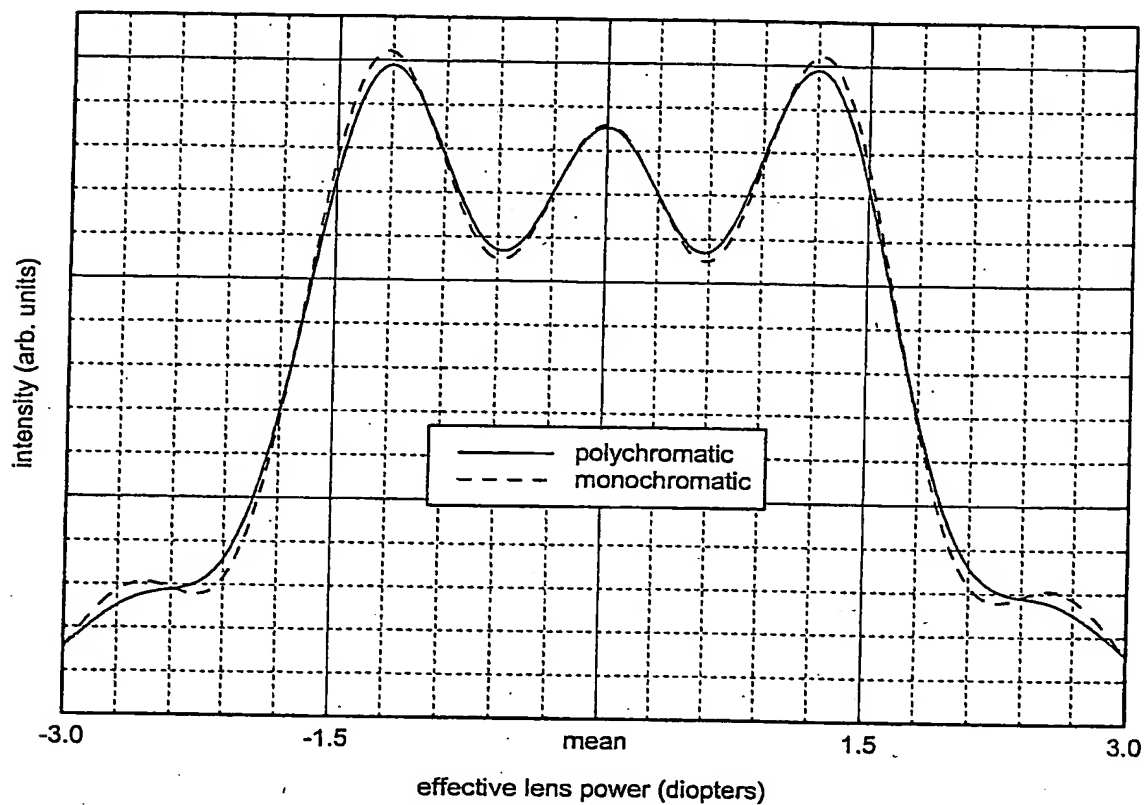
Fig 2: power profile P1 of a circular lens of 2 mm diameter
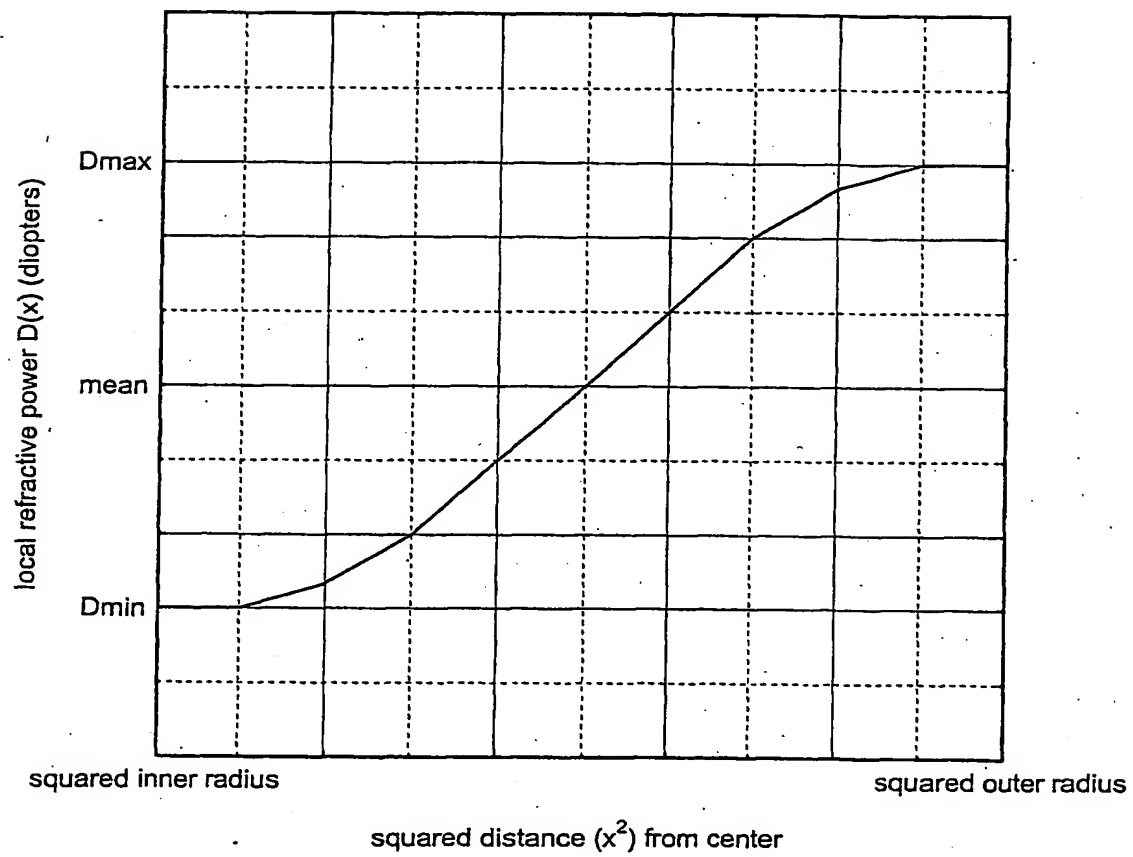or an annular lens of 3.1416 mm^2 area

Fig 3: TFR of a circular lens of 2 mm diameter (lens zone of 3.14 mm^2) exhibiting power profile P2
monochromatic: 550 nm
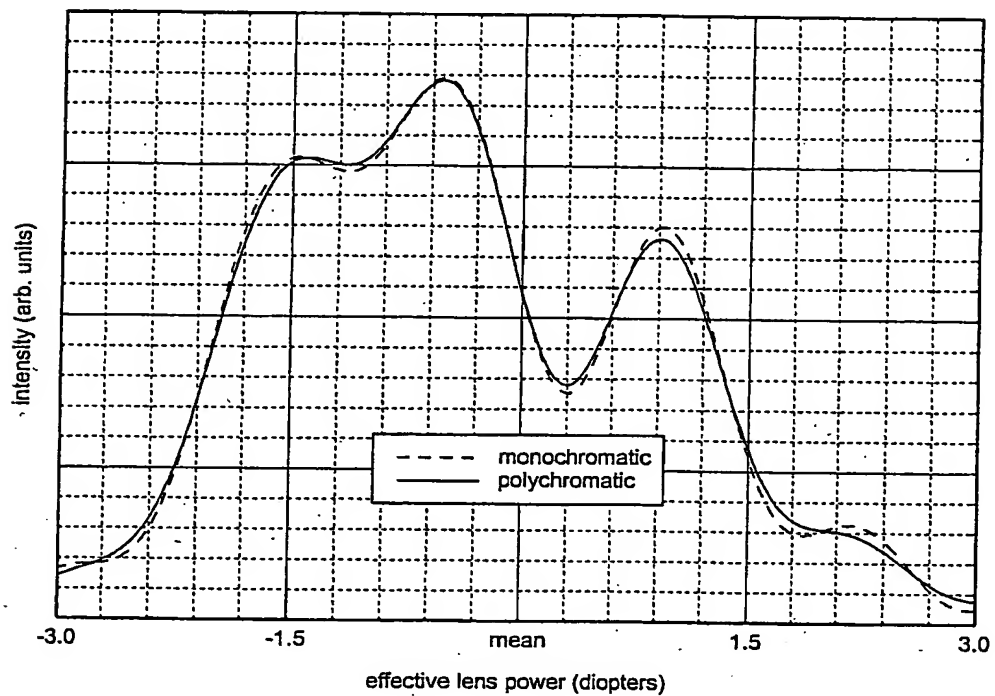polychromatic: 550nm mean, Gaussian distr., C.L. = 3.1 microns

Fig 4: power profile P2 of a circular lens of 2 mm diameter
or a lens zone of 3.1416 mm^2 area

squared inner radius

squared outer radius
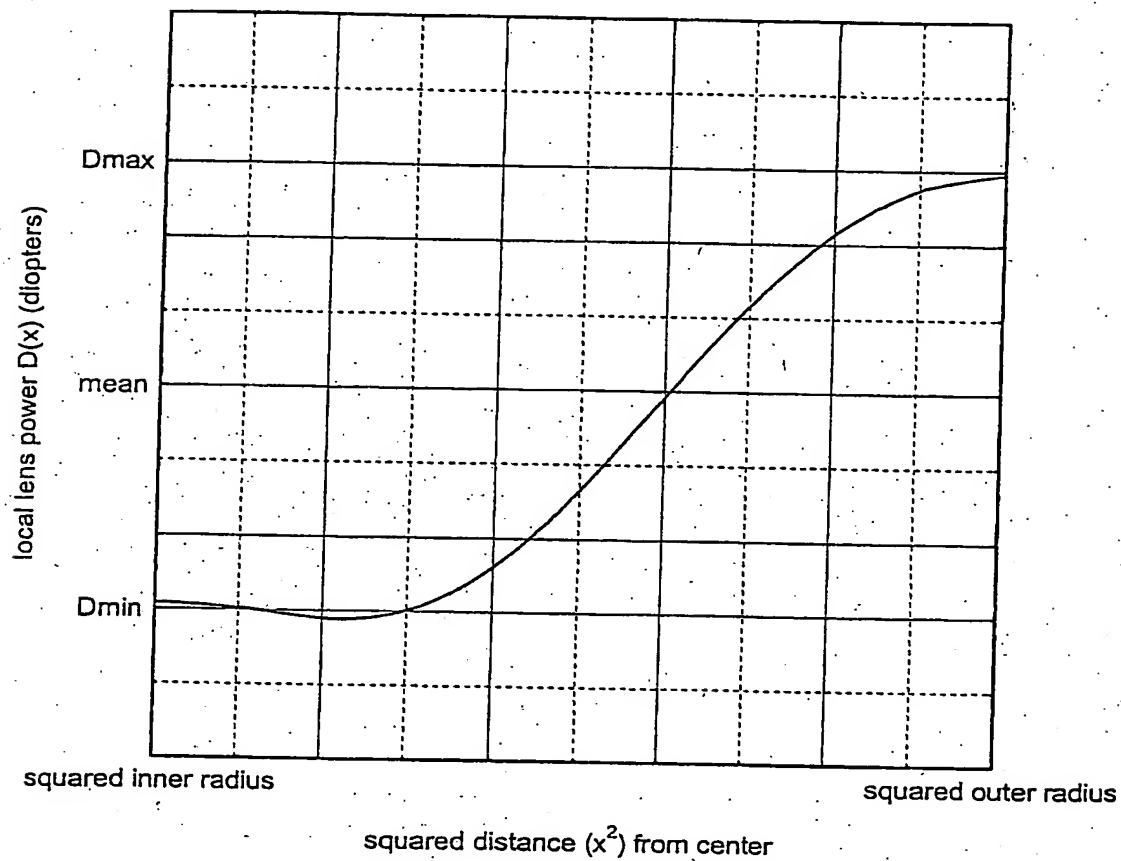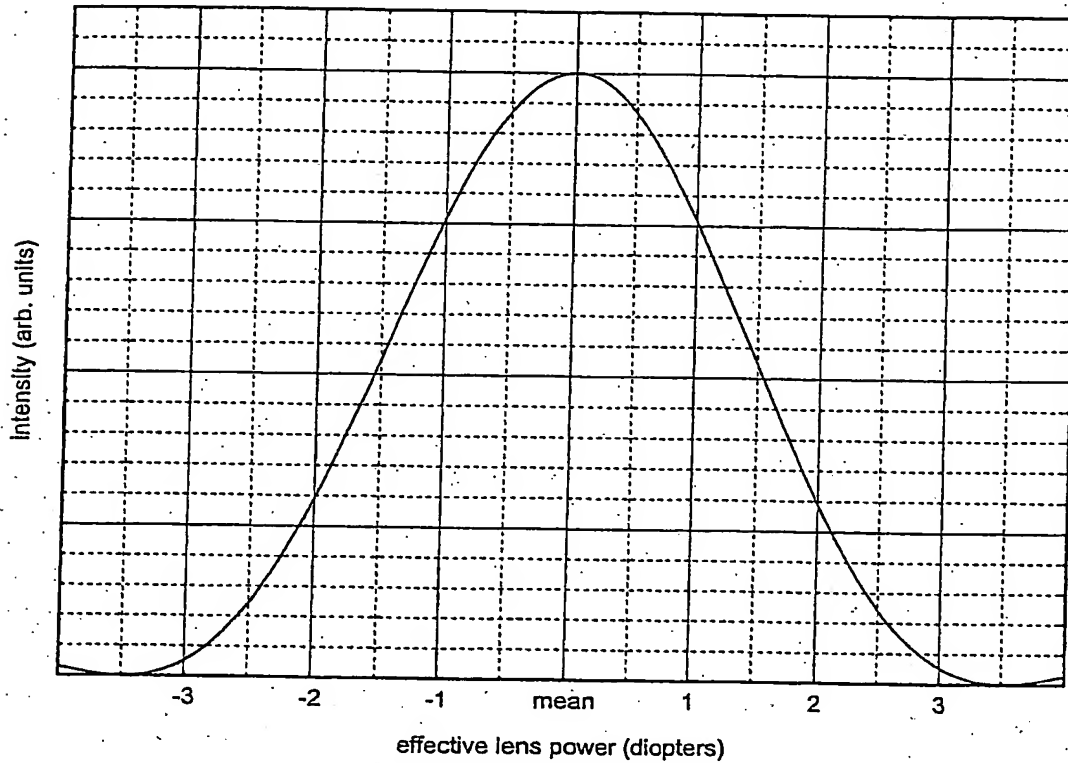
squared distance (x^2) from center

Fig 5: TFR of a lens of 1.12122 mm diameter or an annular lens zone of 1.154 mm^2 area
case: constant single power within lens or lens zone
constant single power = mean effective lens power

(PRIOR ART).

Fig 6: TFR of lenses of various diameters and power profiles
ΔD is the difference between the maxium and minimum power of the power profile of Fig. 2

diameter 3.45 mm, ΔD = 1 diopter
diameter 2.45 mm, ΔD = 2 diopters
diameter 2 mm, ΔD = 3 diopters

Intensity (arb. units)

-3.0   -1.5   mean   1.5   3.0
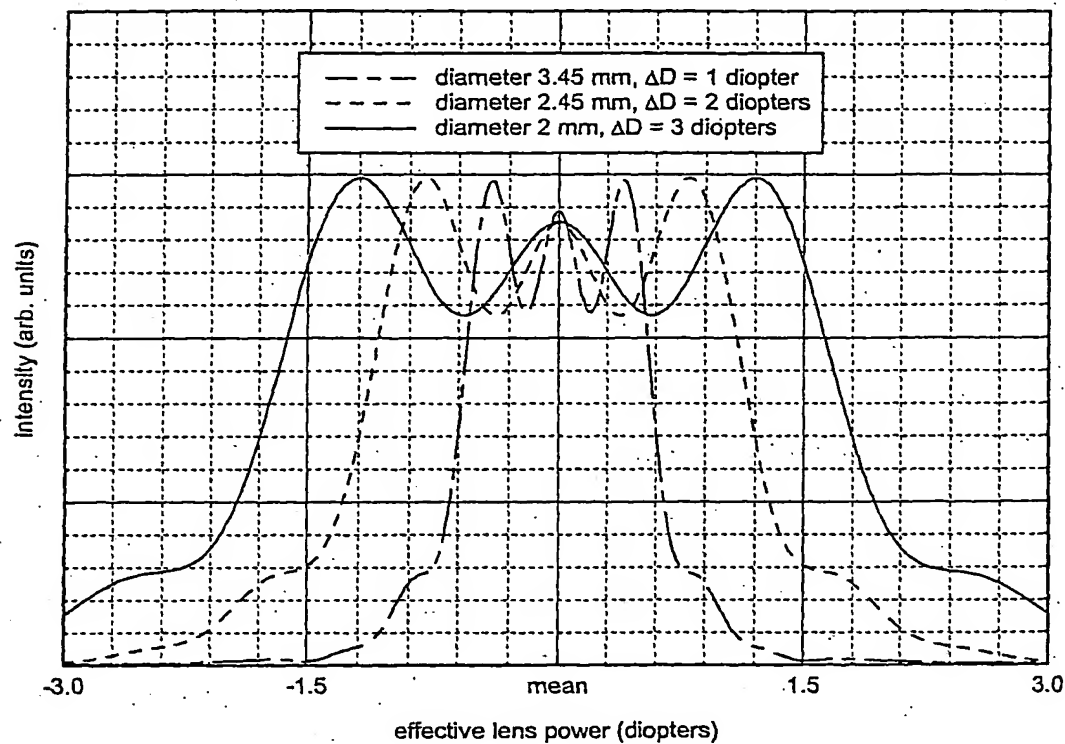
effective lens power (diopters)

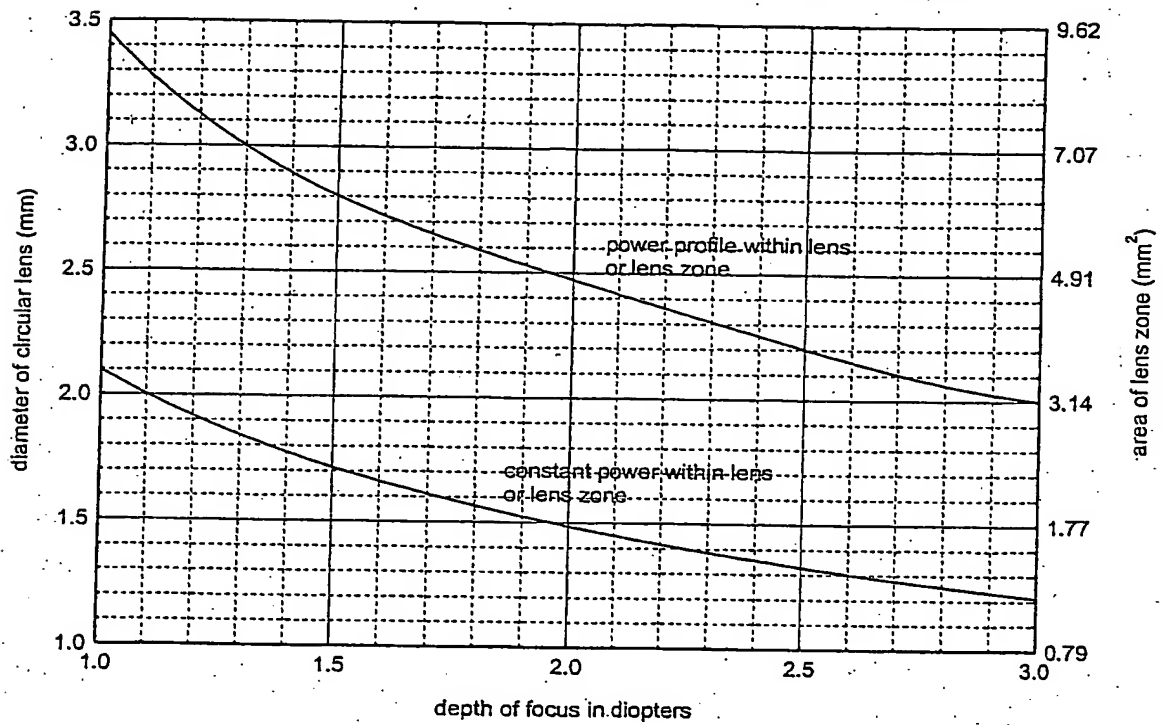Fig 7: depth of focus vs. circular lens diameter or area of lens zone

Fig 8: TFR of a depth of focus lens of 4 mm diameter in polychromatic light (coh. length = 3.1 micro lens consists of four Fresnelian zones - power profile P1 within every zone (Fig 2)
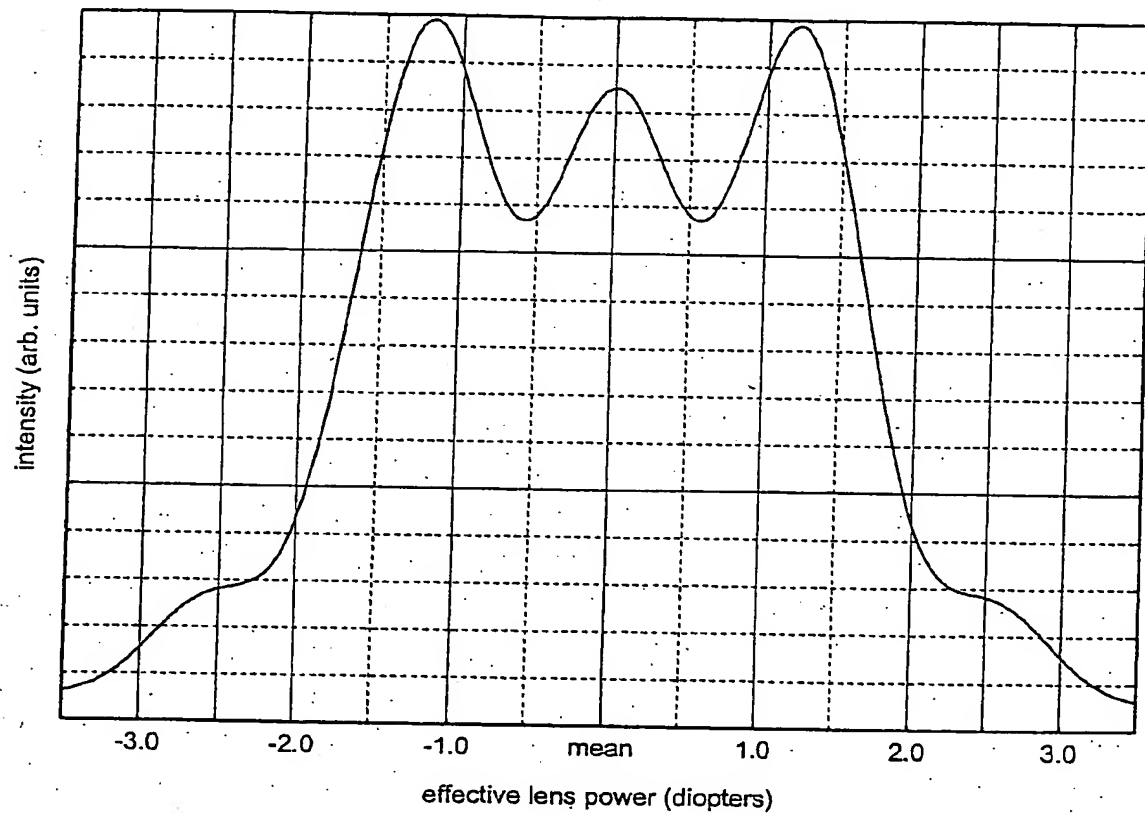
Fig 9: TFR of a depth of focus lens of 4 mm diameter comprising 4 Fresnel zones
power profile of zones 1 and 3: P1 (Fig 2)
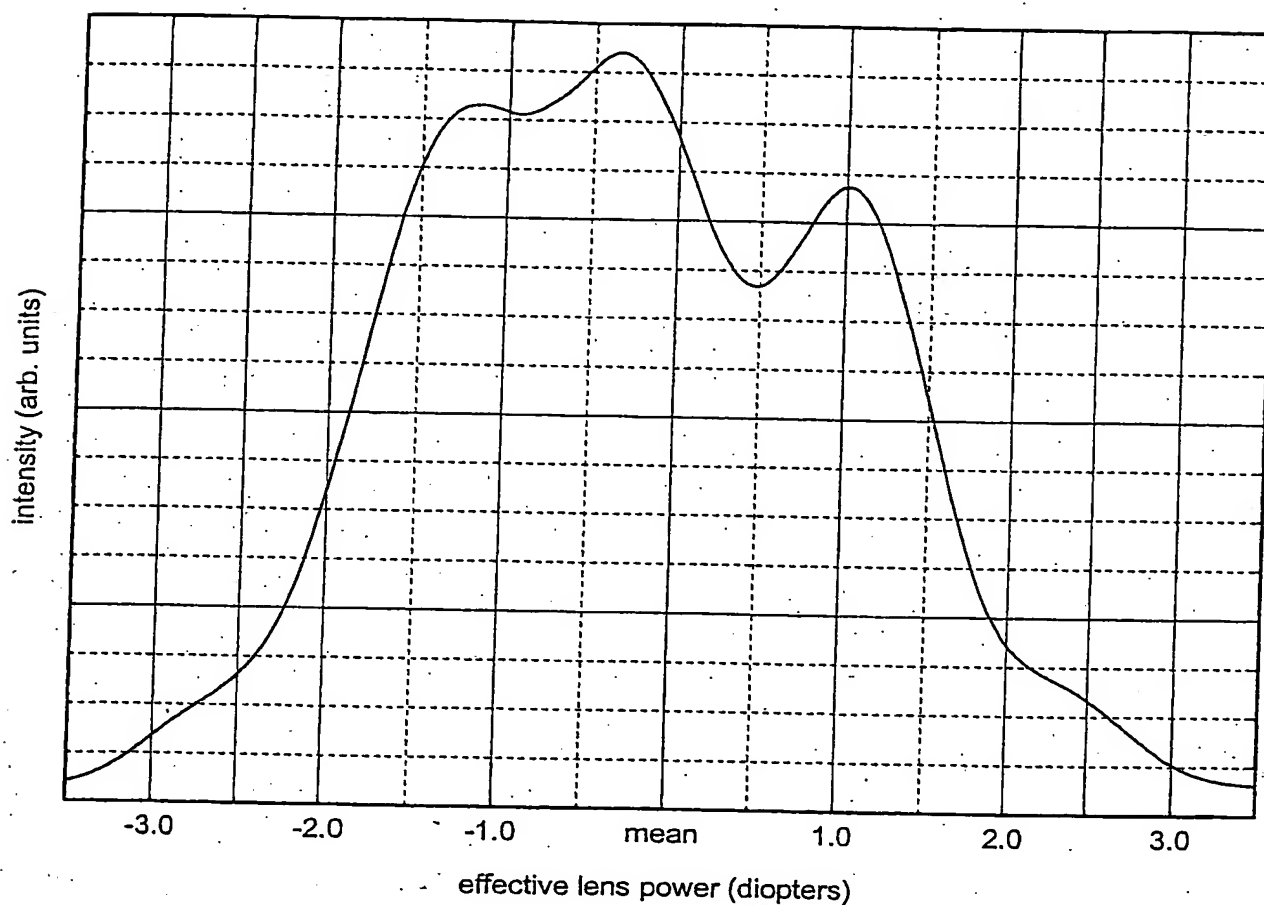power profile of zones 2 and 4: P2 (Fig 4)

Fig. 10: cross section of a depth of focus lens (schematic)
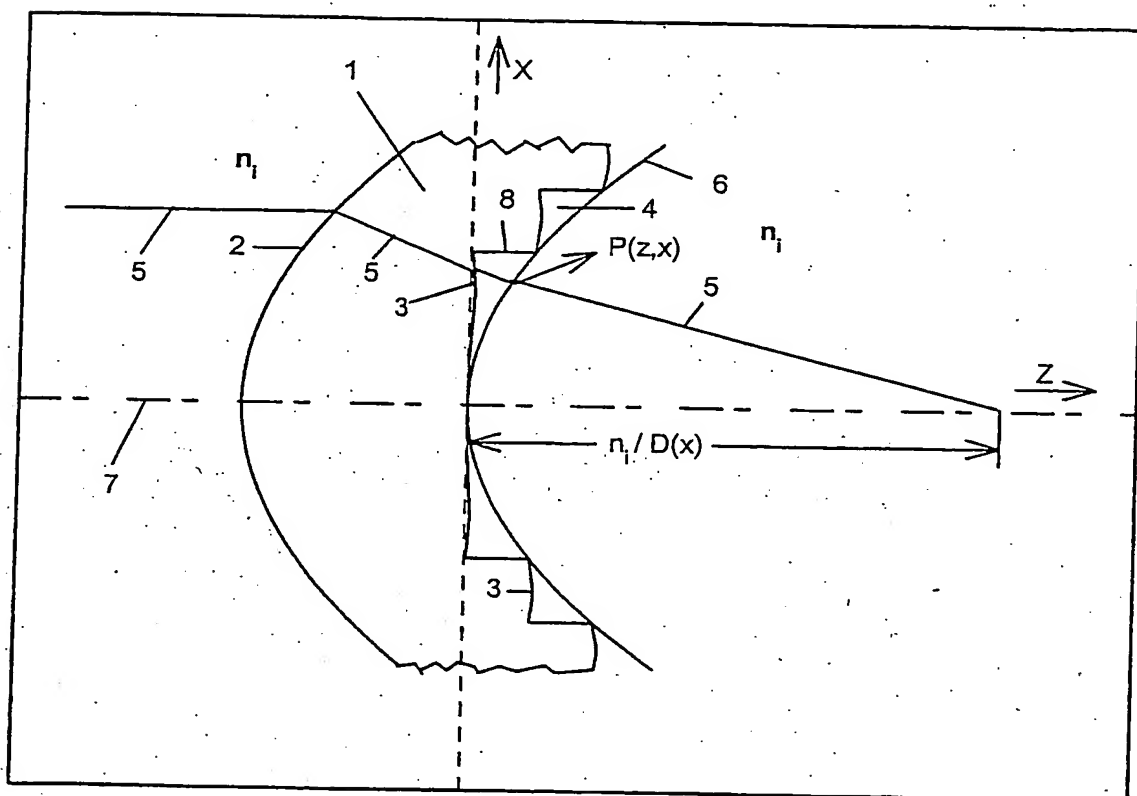
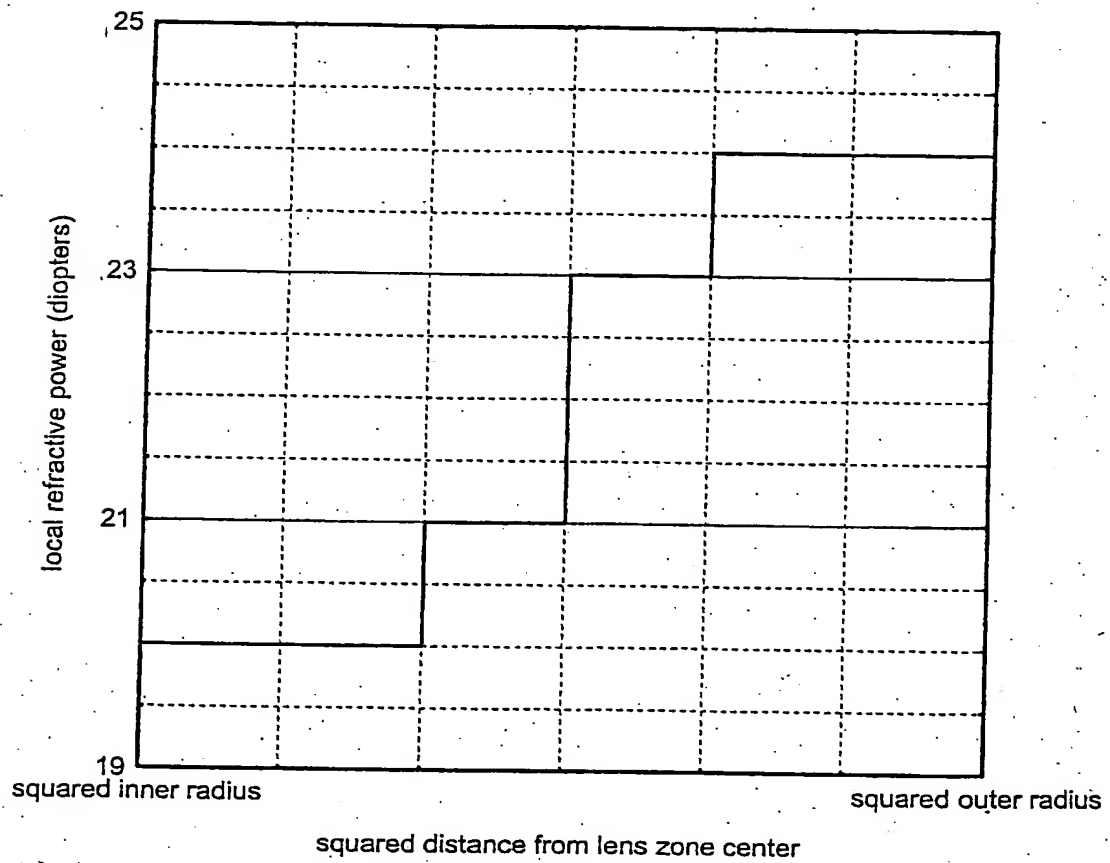Fig. 11: approximation of power profile P1 according to figure 2

Fig. 12: TFR of an intra-ocular lens for polychromatic light
of mean wavelength 550 nm and C.L. of 2.3 microns
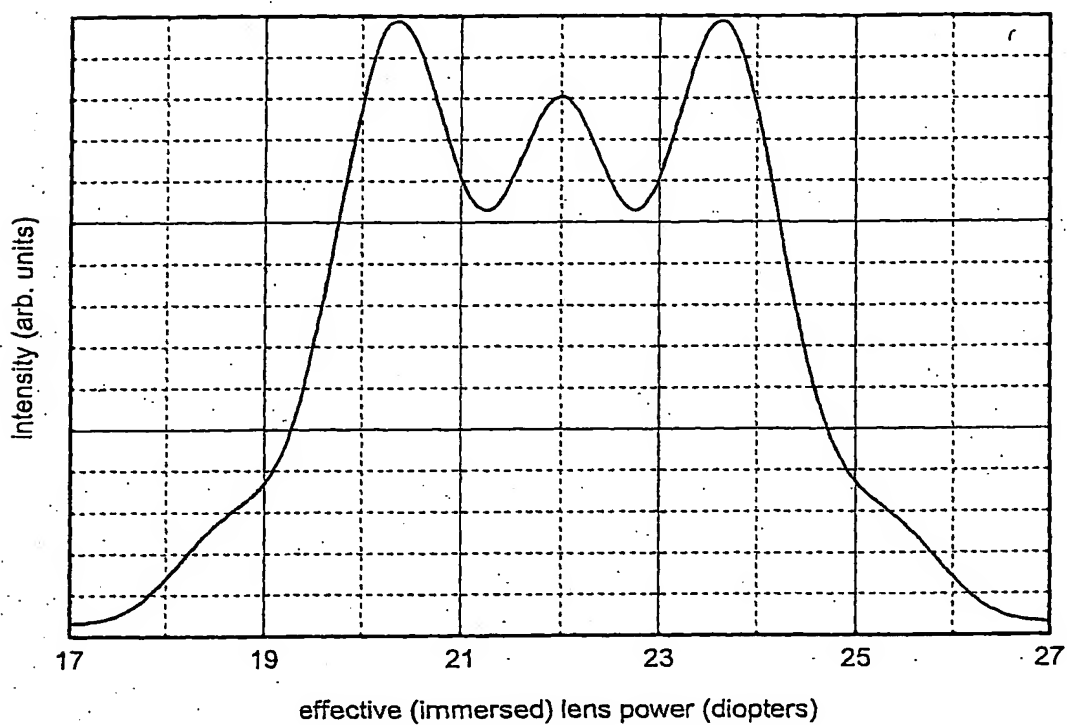power profile of lens according to Fig. 11

effective (immersed) lens power (diopters)

Fig. 13 A: TFR of a lens zone of 3.46 mm^2 area,
lens zone exhibits power profile shown in Fig. 14
monochromatic light: 550 nm
polychromatic light: mean 550 nm, C.L. = 2.3 microns

intensity (arb. units)
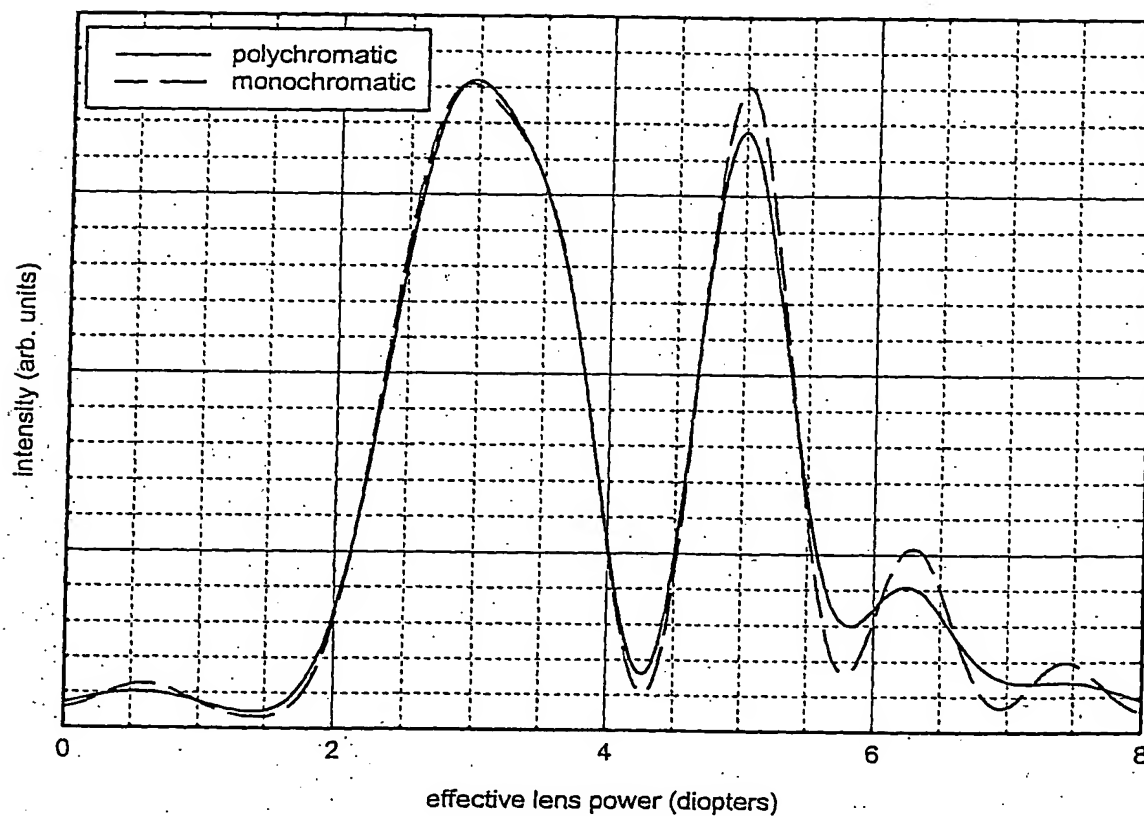
effective lens power (diopters)

Fig. 13B: TFR of a lens consisting of 9 Fresnel lens zones on a 6.293 mm diameter polychromatic light of mean wavelength 550 nm and C.L. = 2.3 microns lens zones have power profile according to Fig. 14
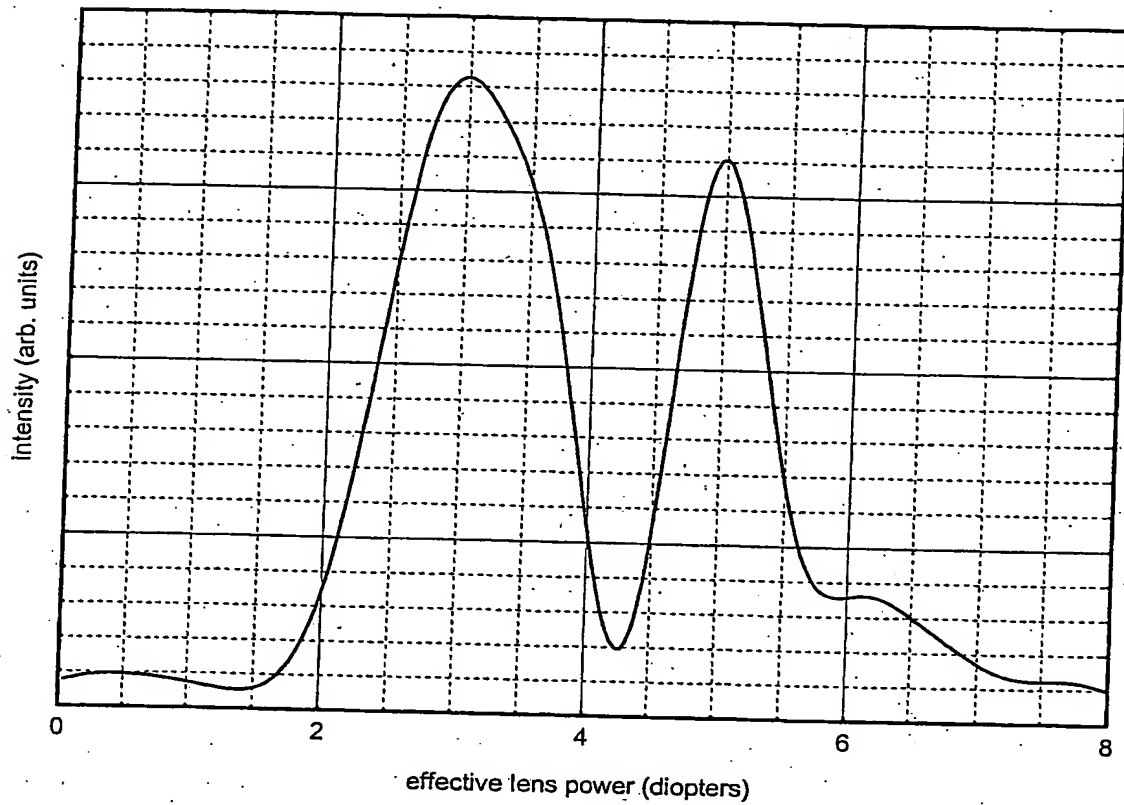
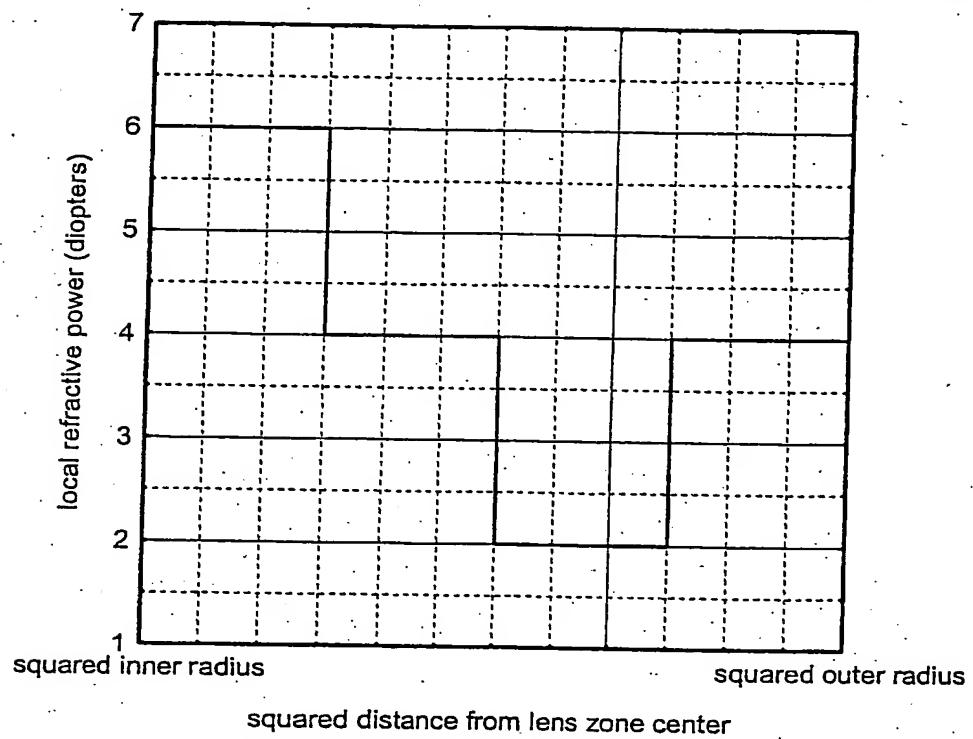Fig. 14: refractive power profile of lens zones of lens according to figure 13

Fig. 15: TFRs for various apertures of a depth of focus lens
lens zone areas increase from center to rim
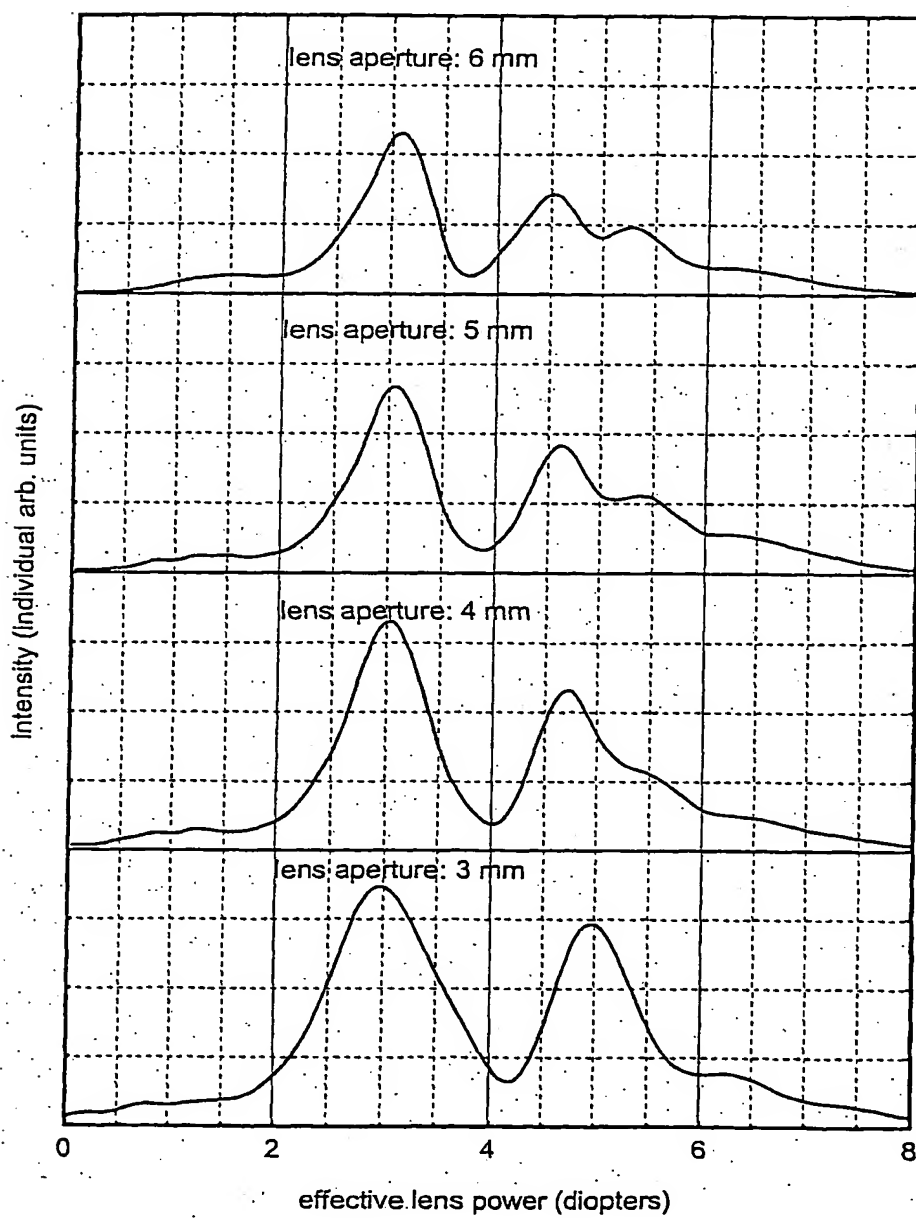power profile of every zone is given by Fig. 14

Fig. 16: TFR for various apertures of a lens
consisting of lens zones like lens according to Fig. 15
but without steps between lens zones